

## THE COURTSHIP AND MIGRATION OF THE RED-BREASTED MERGANSER (*MERGUS SERRATOR*).<sup>1</sup>

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THE Red-breasted Merganser or Sheldrake, as it is commonly called on the New England coast, is an interesting and at some seasons an abundant bird. Like the Whistler and the Eider,<sup>2</sup> this duck has a spectacular and distinctive courtship display.

The nuptial performance is always at its best when several drakes are displaying their charms of movement, voice and plumage, before a single duck, and each vies with the other in the ardor of the courtship. The drake begins by stretching up his long neck so that the white ring is much broadened, and the metallic green head, with its long crest and its narrow red bill, makes a conspicuous object. At once the bill is opened wide and the whole bird stiffly bobs or teters as if on a pivot, in such a way that the breast and the lower part of the neck are immersed, while the tail and posterior part of the body swing upward. This motion brings the neck and head from a vertical position to an angle of forty-five degrees. All the motions are stiffly executed, and suggest a formal but ungraceful courtesy.

For many years I have seen this performance more or less imperfectly in the spring, but, owing to the distance of the birds or the direction of the wind, I have been unable until recently to hear the nuptial song that the open mouth of the bird led me to expect. On April 19 last, however, the conditions were most favorable, and, in company with Mr. Francis H. Allen, I not only saw but heard the courtship performance repeated many times at Ipswich. Concealed behind some bushes at the foot of Castle Hill at the mouth of the Ipswich River with a gentle wind blowing towards us, we watched and listened to the birds within two or three hundred yards of us for over half an hour. Again on April 30 I had a similar but less favorable opportunity. My notes of the nuptial movements correspond with those taken several times before

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<sup>1</sup> Read before the Nuttall Ornithological Club, May 15, 1911.

<sup>2</sup> Auk, XXVII, 1910, pp. 177-181.

when the birds were seen performing off the beach, but when, owing to the distance and the roar of the surf, their nuptial song had been inaudible.

This *song*, emitted when the bill is opened, is a difficult one to describe, but easily recognized when once heard, and remains long in the memory after one has heard it repeated over and over again by a number of Merganser suitors. It is a loud, rough and purring, slightly double note which I wrote down *da-ah*, but the note is probably insusceptible of expression by syllables.

The bobbing and the love-note may be given twice in rapid succession although at times the performance is a single one, or may consist of an extensive bob, preceded by a slighter but similar one. The performance is, however, repeated at frequent or infrequent intervals, depending on the ardor and number of the suitors, and, no doubt, on the attitude of the modestly dressed lady.

Although the female merganser may remain passive and coyly indifferent, as is the habit of her sex, she sometimes responds by a bobbing which is similar to that of the male, but of considerably less range. That is to say the neck is not stretched so straight up, and the breast is not so much depressed during the bob. She emits a single note at this time, which is somewhat louder than that of the male and is of a different quality as it is decidedly rasping. As nearly as I can remember this note is similar to the rough croaks I have heard given by these birds in Labrador when they were flying to and from their nests.

When the female responds in this manner she appears to be very excited, and the ardor of the drakes is correspondingly increased, if one may judge by the frequent repetition of the love antics and notes, and by the fact that they crowd about the duck. Every now and then she darts out her neck and dashes at the ring of suitors, just as the female English Sparrow does under similar circumstances.

The bobbing up of the stern of the male is the more conspicuous as the wings are then apparently slightly arched upwards, so that the white secondary feathers are very prominent. These show at all times as the male swims in the water, but in the female they are generally but not always invisible.

During the courtship actions the tail is elevated at an angle of forty-five degrees, and it may or may not be widely spread at the same time. In one case the male kept the tail permanently erected and spread during the intervals as well as during the actual antics. This bobbing courtship of the males, although sometimes directed towards the female, is as often directed towards another male or even the empty water.

The males not infrequently rush at one another with powerful leg-strokes making the water foam about their elevated breasts. Sometimes they raise their wings slightly or splash along violently using both wings and feet for propulsion. Now and then a male pursues a female, and she, to avoid capture, may dive and is at once followed by the male. In flight the female generally precedes by a short interval the male. Out of fifteen pairs observed in flight on April 20, 1907, in twelve the female flew first. In Labrador I found this sequence was the rule among courting Eiders except when the pair were startled, when the drake ungallantly outsped the duck. As far as I have observed there is no display of the feet with the accompanying spurting of the water as in the case of the Whistler.

The positions often assumed by Mergansers, both male and female, with the neck stretched flat along the surface of the water as they swim, and with the bill partially immersed as if they were straining the water for food, or with all of the head below the water except the crest as if they were looking for fish, are, I believe, not parts of the nuptial performance and are common at all seasons. So also the momentary erect position with flapping wings is common at all times of the year, although its advantages for display leads me to think that at times it forms part of the courtship actions. This is especially the case when the bird rises up, as he sometimes does, with wings close to the side, and recalls the similar actions of the Eider in displaying his black belly-shield.

The migration of the Red-breasted Merganser is an impressive one on account of their numbers, but there are some interesting points in the distribution of the sexes and of the immature birds and adults that are well worth study. I am inclined to believe from an examination of the figures in my records for the last ten years that this bird has of late considerably increased in numbers.

The largest number I ever saw at Ipswich was on October 23, 1910, when Mr. F. H. Allen and I estimated, and we believe conservatively, twenty thousand Red-breasted Mergansers off the beach. Better enforcement of the game laws, and especially the establishment of a close season in the late winter and spring, are I believe the chief reasons for this increase. I am also of the opinion that we owe a great deal to M. Meunier, the great French chocolate king, for his exclusion of guns from the island of Anticosti, which has become his property,—an island that thus forms a splendid breeding sanctuary for Mergansers, Black Ducks, Yellow-legs and other water birds.

The Red-breasted Merganser does not breed in Essex County, but it is not uncommon to find two or three birds, presumably sterile, throughout the summer at Ipswich. The species begins to arrive from the north the last of September, and becomes common and then abundant in October. The great throngs of birds in this month appear to be made up almost exclusively of birds in the female or immature plumage. In the latter part of the month and in November many are to be seen changing into the beautiful dress of the adult male, while by the last of December and throughout January and February it is comparatively rare to see a bird in female attire. Thus on January 24, 1904, out of some five hundred Mergansers I could count only six in the female plumage. In March the females put in an appearance, and courting begins, and by the last of April and in May the birds are largely paired, although flocks of either or both sexes are common. Many of the birds remain late in May before migrating for the north. Thus on May 14, 1905, I saw 200 Red-breasted Mergansers at Ipswich, 42 on May 20, 1904, and 32 on May 26, 1907. Some at least of the immature males are slow in changing to adult plumage, and males in nearly complete immature dress with only a few greenish feathers about the head are seen and have been shot in April and May. Whether these birds complete the nuptial moult that year or not until the next year I am unable to say.

So much for the plumage and sexes of the birds at the various seasons. In numbers they are the greatest in the latter part of October and in November. In December, January and February they are fairly constant in numbers but considerably less than in

the fall, while in the spring their ranks again increase but never equal the multitudes of the fall.

The explanation of all this is interesting and I believe sufficiently apparent. The great flocks of birds in the fall in somber plumage are made up of immature birds, of adult females, and of the adult males in the eclipse plumage. In November the adult males moult into the nuptial plumage, while the females and young leave for the south, so that during the winter months practically all the birds are adult males in full plumage. Whether the exceptions are females or immature males or both I cannot say. In March and April the females return from the south as well as the immature males, which have not moulted into adult plumage, together with some adult males.

The southern side of this picture which rounds out and corroborates my northern observations has been given me by Mr. Wm. Brewster who said that in Florida in winter he had seen large flocks of female and immature Red-breasted Mergansers, and by Mr. Arthur T. Wayne, who, in his 'Birds of South Carolina,' 1910, page 13, says of this species: "From the time when these fish-eating ducks arrive until the first week in February the adult drakes are seldom, if ever, seen, but towards the second week in February they make their appearance in large numbers."

The old males brave the rigors of the northern climate, while the females and young seek warmer regions during the winter, but it would seem as if some of the impatient suitors were unable to await the return of their partners from the south, and must needs go and fetch them.